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SUMMARY

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INDUSTRIALIZATION OF COCONUT PRODUCTS AND BY-PRODUCTS

By CANUTO G. MANUEL, D.Sc.,
Commissioner,
National Institute of Science and Technology

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INDUSTRIALIZATION OF COCONUT PRODUCTS AND BY-PRODUCTS

BY CANUTO G. MANUEL, D. Sc.
Commissioner
National Institute of Science and Technology

S U M M A R Y

1. The coconut is the premier income-producing export crop in the Philippines. In 1961, the coconut industry contributed to the national export income the total amount of $132,198,500. The Philippines is the world's biggest nut and copra producer. About 1/3 of the population (around 9 million) depend wholly or partly upon this industry for their livelihood.

2. However, the industry is presently faced with serious problems. Its status is not stable, its future is uncertain due to two factors: The recurring threat of the still unsolved "cadang-cadang"disease of coconut trees, and the increasing competition to copra and copra oil posed by synthetic detergents in foreign markets. The industry is utmost dependent only on its produce of crudely-processed and low-quality copra and copra oil. There is resultant tremendous waste in raw materials from primitive copra making. Only 20% of the whole nut is now being utilized, the 80% go to waste. The present income therefore derived from the industry represents only a small portion, about 20% of the total amount that can actually be obtained if all parts of the fresh matured nut are completely utilized and industrially developed into diversified higher-priced consumer commodities, particularly various protein-rich food products from the coco meat and water to augment the food supply of a fast growing Philippine population (3.2% increase per annum).

3. The coconut ranks foremost in potentialities for industrialization. Hence, it is in this area where top-priority application of science and technology has been considered by the National Institute of Science and Technology (NIST), the government research agency, as most prospective in terms of end-results that will tremendously enhance Philippine socio-economic progress.

4. In formulating the NIST 5-year program, which was first implemented in 1961, on the industrialization of coconut products and by-products, it was deemed of economic necessity that the coconut industry should be diversified and oriented towards a new direction of development and growth and gradually eliminate copra method. The program consists of two complimentary and simultaneous phases,

the laboratory research phase and the pilot plant developmental phase. After the second phase economically feasible project studies are passed over for private industry to commercially exploit. Long-range object: to increase marketable exports and reduce imports

5. The primary objective of the coconut industrialization program is the development of an optimum integrated process/processes for the complete utilization of the components of the coconut and the design and construction of a coconut field processing plant using fresh matured nut as the raw material. Such an integrated mechanized process combines the following major steps:

(a) husking of the coconuts;
(b) shelling the dehusked nuts;
(c) processing the fibers and coir dusts into either pulp or for construction materials;
(d) grinding the shells and other husk wastes, flash carbonizing the mixture to recover the creosote distillate and separately recovering the charcoal either for briquetting or for production of carbon black or carbon electrodes;
(e) grinding the cleaned meat to micron size;
(f) drying the ground meat in fluidized bed dryer with simultaneous production of edible grade granulated coconut with oil content controlled as desired (main product and material for various food products, including quality water-white edible oil); and
(g) evaporation of the coco water to produce a coco concentrated syrup or use the water for the microbiological production of protein-rich food yeast.

6. Economics-wise, preliminary profitability studies on the NIST integrated process, when commercialized, will increase the current per capita income of the rural coconut grower twice or thrice as much as the return from his copra making. However, while economic gains by this change of developmental approach are very promising, the major problem being met by the NIST in the prosecution of its coco program is lack of up-to-date "multi-purpose" pilot plants and facilities.

7. Selected thru a developed criteria for priority rating of specific projects based on technical feasibility, on raw materials used and end-product objectives, NIST projects on this area cover: (a) projects centered on the husk; (b) projects centered on the shell; (c) projects centered on the meat and oil (first priority field); and (d) projects centered on the coco water.

8. The specific projects, experimental processes evolved and results, and the developmental aspects of the integrated processing of coconuts are cited and described in the manuscript proper.

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